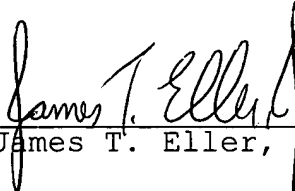


- ☐ Please charge Deposit Account No. 02-2448 in the amount of \$0.00. A triplicate copy of this sheet is attached.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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JTE/RJW/gf
2832-0118P

Attachment(s)



APPEAL BRIEF - PATENTS
2382-0118P

IN THE U.S. PATENT AND TRADEMARK OFFICE

In re application of

Before the Board of Appeals

OH, Sang Jin, et al.

Appeal No.:

Appl. No.: 09/730,783

Group: 1763

Filed: December 7, 2000

Examiner: A. OLSEN

Conf.: 8908

For: PROCESS FOR MANUFACTURING ROLL PUNCH USED
FOR FORMING PARTITION WALLS OF PLASMA
DISPLAY PANEL



PATENT
2832-0118P

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicants: Sang Jin OH et al. Conf.: 8908
Appl. No.: 09/730,783 Group: 1763
Filed: December 7, 2000 Examiner: A. OLSEN
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USED FOR FORMING PARTITION WALLS OF
PLASMA DISPLAY PANEL

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PATENT
2832-0118P

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USED FOR FORMING PARTITION WALLS OF
PLASMA DISPLAY PANEL

BRIEF ON APPEAL UNDER 37 C.F.R. § 41.37

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

February 23, 2005

Sir:

Appellants hereby appeal from the decision in the Office Action dated July 23, 2004 finally rejecting claims 1-9, modified by the decision in the Advisory Office Action dated November 8, 2004 objecting to claim 3 and rejecting claims 1, 2 and 4-9.

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I. Real Party in Interest

The real party in interest for this Application is LG Electronics, Inc. as evidenced by an Assignment recorded on December 7, 2000 at Reel 11350, Frame 100.

II. Related Appeals and Interferences

To the best of Appellants' knowledge, there are no other prior or pending appeals of this Application, or patent interference proceedings, or judicial proceedings which may be related to, directly affect, or be directly affected by, or have a bearing on the Board's decision of this Appeal.

III. Status of Claims

In the Application on appeal, claims 1-10 are pending. Claims 1-9 are on appeal. Claim 10 has been withdrawn from consideration, claims 1, 2 and 4-9 are rejected, and claim 3 is objected to.

IV. Status of Amendments

No Amendments have been filed subsequent to final rejection. The status of the claims is correctly stated in the Amendment under 37 CFR §1.111, filed on May 17, 2004, and entered in the file pursuant to 37 CFR §1.111.

V. Summary of the Claimed Subject Matter

Claim 1 is the only independent claim.

Independent claim 1 recites a process of manufacturing a roll punch 40 used for forming partition walls of a plasma display panel, comprising the steps of: coating a mask 22 on an external surface of a forming roll 21; partially removing the mask from said forming roll 21 at regularly spaced positions while rotating said forming roll 21, thus forming an intermediate product 25 having a plurality of mask-free parts formed as continuous circles around the forming roll 21; and etching said intermediate product 25 at the mask-free parts by radiating ultrasonic waves.

The roll punch 40 is shown, for example, in Fig. 4, and an exemplary method of making roll punch 40 is described, for example, on pages 8 and 9 of the main body of the specification. The step of coating a mask 22 on an external surface of a forming roll is described, for example, on page 8 of the main body of the specification and is illustrated, for example, in Figs. 4 and 5, with reference, for example, to step S1. The step of partially removing the

mask 22 from said forming roll at regularly spaced positions while rotating said forming roll, thus forming an intermediate product having a plurality of mask-free parts formed as continuous circles around the forming roll is disclosed, for example, on page 8 of the specification and is shown, for example, in Figs. 4 and 5, with reference, for example, to step S2. The step of etching said intermediate product at the mask-free parts by radiating ultrasonic waves is disclosed, for example, on pages 8 and 9 of the main body of the specification and is illustrated, for example, in Figs. 4 and 5, with reference, for example, to step S3.

Claim 4, which is a dependent claim that is separately patentable over the subject matter of claim 1, recites the subject matter of claim 1, further comprising completely removing a remaining part of said mask 22 from the forming roll having the partition wall forming grooves, thus finally producing a roll punch 40; and wherein an inclination angle of each inclined sidewall of each of the partition wall forming grooves of the roll punch 40 relative to a vertical reference line perpendicular to an external surface of lands 42 between said forming grooves is 3° or less.

This subject matter is disclosed, for example, in originally filed claim 4, which is part of the specification, and, for example, on page 9, lines 13-18, of the main body of the specification, and is illustrated, for example, in Figs. 4 and 5, with reference, for example, to step S4.

Claim 5, which is a dependent claim that is separately patentable over the subject matter of claim 1, recites the subject matter of claim 1, further comprising completely removing a remaining part of said mask 22 from the forming roll having the partition wall forming grooves, thus finally producing a roll punch 40; and wherein the partition wall forming grooves of the roll punch 40 are fabricated such that a value of $[h/(b-a)]$ is 30 or more, wherein “h” is a height of each of the partition walls formed on the plasma display panel by said forming grooves of the roll punch 40, “b” is a width of a middle portion of said partition wall, and “a” is a width of a top portion of said partition wall.

This subject matter is disclosed, for example, in originally filed claim 5, which is part of the specification, and, for example, on page 9, lines 19-25, of the main body of the specification, and is illustrated, for example, in Figs. 5 and 6.

VI. Grounds of Rejection

Claim 1 is rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent 5,709,598 to Nishio et al. (“Nishio”) in view of U.S. Patent 5,021,120 to Buck et al. (“Buck”), and further in view of U.S. Patent 5,747,931 to Riddle et al. (“Riddle”). In the Advisory Action, claim 3, which had been previously rejected along with claim 1 in the final Office Action, is not listed as a claim under rejection and is indicated as only being objected to.

Claim 4 stands rejected under 35 U.S.C. §103(a) as unpatentable over Nishio, Buck and Riddle, as applied above, and further in view of U.S. Patent 5,858,106 to Ohmi et al. ("Ohmi"). Claim 4 is considered to be separately patentable with respect to claim 1 because claim 4 recites a specific mechanical feature range that is not addressed in any of the applied art, and none of the applied art discloses or suggests that the claimed angle is a result effective variable or that the claimed range is desirable. Claim 4 is argued separately from the arguments directed to claim 1, from which claim 4 indirectly depends.

Claim 5 stands rejected under 35 U.S.C. §103(a) as unpatentable over Nishio, Buck and Riddle, as applied above, and further in view of U.S. Patent 5,858,106 to Ohmi et al. ("Ohmi").

Claim 5 is considered to be separately patentable with respect to claim 1 because claim 5 recites a specific mechanical groove feature range that is not addressed in any of the applied art, and none of the applied art discloses or suggests that the claimed angle is a result effective variable or that the claimed range is desirable. Claim 5 is argued separately from the arguments directed to claim 1, from which claim 5 indirectly depends.

Claim 2 stands rejected under 35 U.S.C. §103 as unpatentable over Nishio, Buck and Riddle, as applied in the rejection of claim 1, and further in view of U.S. Patent 5,182,188 to Cole, Jr. et al. ("Cole").

Claim 2 is not argued separately from the arguments directed to claim 1, from which claim 2 depends.

VII. Argument

A. Claims 1 and 3 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,709,598 to Nishio et al. in view of U.S. Patent No. 5,021,120 to Buck et al, and further in view of U.S. Patent No. 5,747,931 to Riddle et al. (hereinafter, “Nishio, Buck and Riddle).

Appellants respectfully submit that this rejection is improper and should be reversed for the following reasons.

Nishio, the primary reference, in col. 1, starting on line 20, discloses a roll formplate (intaglio printing plate) 1 having plate concavities 5, having a shape for imparting shapes of recessed parts to the polishing layer of an abrasive tape. An ionizing curable resin 3 containing an abrasive material is used to fill the concavities 5, and is cured by ionizing radiation while a substrate 2 is contacting formplate 1. The cured resin is formed into a resin layer 9a which is adhered to the substrate 2 to form an abrasive tape 11 having a polishing abrasive layer 10 provided with recesses 9.

Nishio can form concavities 5 by a method such as electronic engraving, etching, milling on a lathe, milling machine or the like, electroforming and

sandblasting – see col. 6, lines 24-27. Nishio also discloses using known gravure processes – see col. 7, lines 20-28.

In col. 7, starting in line 34, another method, different from those described above, is disclosed. In this method, Nishio forms concavities 5 by (1) laying a photosensitive resist film on a surface of metal plate 15, as shown in Fig. 6; (2) using a photomask having the desired concavity shape, exposing the resist film 16 to light to develop the photomask, (3) opening windows 18 of the desired shape of the opening part by leaving a resist pattern 16a, etching the metal within the windows with an etching solution, (4) side etching the concave parts 20, and causing side etching to proceed to achieve the plate concavities as shown in Fig. 10. Those concavities are formed in the metal plate, not in the photomask, which is removed to form the roll 1.

Nishio differs substantially from what is claimed.

In the first place, as noted above, Nishio fails to disclose an intermediate roll member with a mask where the concavities are formed in the mask and retained in the mask as part of the intermediate member.

In the second place, Nishio forms its mask, not on a roll, as recited, but on a “metal plate 15.” See col. 7, lines 35-54.

In the third place, Nishio does not partially remove portions from the mask while rotating a roll, as recited. Because Nishio places its mask on a plate, it has no roll to rotate. Nor does Nishio disclose rotating the plate.

In the fourth place, Nishio does not disclose forming an intermediate product having a plurality of mask free parts formed as continuous circles.

In the fifth place, Nishio does not disclose forming an intermediate product having mask-free parts in the form of continuous circles formed as continuous circles around a forming roll.

With respect to claim 3, Nishio does not disclose using a cutting bite to partially remove the mask from the metal plate 15. Nishio only discusses milling concavities directly in metal roll 1.

The Office Action incorrectly assumes that Nishio's photomask is formed on roll 1. That is incorrect because Nishio discloses forming a photomask on a plate 15, not on roll 1. A plate is not a roll.

The Office Action correctly admits that Nishio fails to disclose "partially removing the mask from said forming roll at regularly spaced positions while rotating said forming roll, thus forming an intermediate product having a plurality of mask-free parts formed as continuous circles around the forming roll."

The Office Action also correctly admits that Nishio does not disclose removing portions of the masking layer with a cutting bite.

To remedy the admitted failure of Nishio to disclose "partially removing the mask from said forming roll at regularly spaced positions while rotating said forming roll, thus forming an intermediate product having a plurality of

mask-free parts formed as continuous circles around the forming roll,” the Office Action refers to the portion of Nishio that deals with forming concavities 5 in a roll 1, where Nishio discloses methods such as electronic engraving, etching, milling on a lathe, milling machine or the like, electroforming and sandblasting – see col. 6, lines 24-27.

However, this disclosure is only directed to milling the metal roll directly. There is no disclosure in Nishio of milling a photomask. Moreover, the disclosure of forming concavities using a photomask is stated as an alternative to directly milling the metal roll.

The idea of milling a photomask is definitely not found in Nishio.

The Office Action then turns to Riddle to cure the deficiencies of Nishio. In rejecting claims under 35 U.S.C. 103, it is incumbent on the Examiner to establish a factual basis to support the legal conclusion of obviousness. See, In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one of ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal Inc. v. F-Wiley Corp., 837 F.2d 1044,

1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a *prima facie* case of obviousness. Note, In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be suggested or taught by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1970). All words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

A suggestion, teaching, or motivation to combine the prior art references is an “essential evidentiary component of an obviousness holding.” C.R. Bard, Inc. v. M3 Sys. Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). This showing must be clear and particular, and broad conclusory statements about the teaching of multiple references, standing alone, are not

“evidence.” See In re Dembiczak, 175 F.3d 994 at 1000, 50 USPQ2d 1614 at 1617 (Fed. Cir. 1999).

Riddle is really non-analogous art to Nishio. Nishio is directed to methods of making a metal roll formplate to be used to form an adhesive tape, and making the adhesive tape using a resin that is cured and attached to a substrate 2. Riddle, on the other hand, is not directed to making a metal roll formplate, nor does Riddle make adhesive tape. Moreover, Riddle uses a pressing or an embossing technique whereas Nishio does not, and Riddle makes electrodes whereas Nishio does not.

One of ordinary skill in the art would not refer to Riddle to modify Nishio because Riddle is not directed to solving the same type of problem facing Nishio. Nishio addresses various methods of forming a roll formplate whereas Riddle does not. Nishio addresses forming an abrasive tape using a curable resin to form a film that is adhered to a substrate film by using a roll, whereas Riddle only addresses embossing or pressing a substrate, not adhering one film onto another film.

The Office Action has not demonstrated the nexus between these two references.

The Office Action then alleges that it would be obvious to form Riddle’s roller 72 using a cutting bite and lathe to form a plurality of mask-free parts.

Appellants do not follow the logic of this assertion for a number of reasons.

In the first place, Nishio is the base reference, not Riddle, and the rejection is based on Nishio in view of Riddle, not Riddle in view of Nishio.

In the second place, Riddle does not disclose how its inverse channels and ribs are formed in roll 72.

In the third place, as noted above, Nishio completely fails to disclose machining a mask layer to form concavities 5, so there is no objective factual evidence of record that would provide any incentive to form Riddle's inverse channels and ribs on roll 72 by coating a mask on a roll and machining the mask.

In fact, because neither reference discloses coating a roll with a mask and machining or milling grooves in the mask, this rejection must be based either on improper speculation or improper hindsight reconstruction of Appellants' claimed invention based solely on Appellants' disclosure. In other words, even if these two references were properly combined (which they are not for reasons presented, *infra*), they would not result in, or render obvious the claimed invention.

Moreover, the Office Action fails to provide any objective evidence of proper motivation to modify Nishio, in view of the secondary reference to Riddle.

As noted above, the Office Action does not make it clear which reference is being modified and which teaching is being used to do the modifying.

The last full sentence on page 3 of the Office Action states that it would be obvious to use a cutting bite and a lathe to form a plurality of mask-free parts formed as continuous circles around the roll forming mask. The last sentence of the first paragraph on page 4 of the Office Action states that it would be obvious to pattern the etching mask (of what reference?) by using any one patterning method disclosed by Nishio, such as engraving or machining on a lathe.

Regardless of which reference is being modified and regardless of which reference is serving as the basis for the alleged modification, the fact remains that neither reference discloses coating a roll with a mask and machining or milling grooves in the mask.

Accordingly, no “clear and particular evidence” of proper motivation to modify Nishio in view of Riddle or to modify Riddle in view of Nishio has been presented in this Office Action. See In re Dembiczak, cited above.

Moreover, in making a rejection under 35 USC §103, the prior art as a whole must be considered. The teachings of the applied references are to be viewed as they would have been viewed by one of ordinary skill in the art. Kimberly-Clark v. Johnson & Johnson, 745 F.2d 1437, 1454, 223, USPQ 603, 614 (Fed. Cir. 1984); In re Mercier, 515 F.2d 1161, 1165, 185 USPQ 774, 778

(CCPA 1975). "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art". In re Wesslau, 353 F.2d at 241, 147, USPQ at 393. In re Hedges, et al., 228 USPQ 685 (Fed. Cir. 1986).

In this instance, the Office Action is merely picking and choosing parts of different, alternative, embodiments of Nishio, and combining them with no proper motivation to do so, and ignoring the fact that Nishio discloses its different embodiments as alternatives. It never occurred to Nishio to combine parts of its different embodiments to arrive at Appellants' claimed invention.

Similarly, the Office Action focuses on only one aspect of Riddle, its embossing roller, and ignores the fundamental differences between it and Nishio's disclosed inventions, which are pointed out, above.

This rejection is treating Appellants' disclosure as prior art with no proper basis on which to do so. In making its determination the prior art must be viewed without reading into that art the patent is teaching. In re Spinnoble, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969). Moreover, "discovery of the source of a problem" is part of the "subject matter as a whole" to be considered in determining obviousness – see Spinnoble, cited above

In this regard, the Office Action provides no objective evidence of prior art disclosing the problem that Appellants overcome. Instead, this rejection is a prime example of improper hindsight reconstruction of Appellants' invention based on Appellants' own disclosure of their invention, and that is fundamentally improper.

The Office Action then turns to Buck, noting that Buck teaches etching in an ultrasonic etch bath and asserts that it would be obvious to use ultrasound while etching the exposed portions of Nishio's forming roll because Buck teaches that the application of ultrasound prevents formation of etchant concentration gradients and thereby provides a highly uniform etching product.

Appellants respectfully submit that Buck fails to remedy any of the aforementioned deficiencies in the Nishio – Riddle reference combination so that, even if it were obvious to use an ultrasonic etching step, as recited, the resulting reference combination would not meet or render obvious the claimed invention. Furthermore, the reference combination does not result in forming a plurality of partition wall grooves encircling the metal intaglio roll of Nishio.

More importantly, Appellants note that Buck is not needed to be applied in the rejection of claims 1 and 3, neither of which recites an etching tank with an ultrasonic vibrator. Such language was removed from claim 1 in the Amendment filed May 17, 2004, a fact apparently overlooked in this rejection.

Accordingly, the application of Buck to reject claims 1 and 3 is improper and is not relevant to this rejection of claims 1 and 3.

Accordingly, Appellants respectfully submit that this rejection of claim 1 is improper and should be reversed.

B. Claims 4-9 stand rejected under 35 USC §103(a) as unpatentable over Nishio, Buck and Riddle, as applied above, and further in view of U.S. Patent 5,858,106 to Ohmi et al. (hereinafter, "Ohmi").

Appellants respectfully submit that this rejection is improper and should be reversed for the following reasons.

The Office Action states that Riddle teaches forming patterns with vertical (orthogonal) side walls. However, the significance of this to the claimed invention under rejection is not stated. Perhaps it is directed to the sidewall angle feature of claim 4. However, as noted above regarding the rejection of claims 1 and 3, Riddle is non-analogous art with respect to Nishio and these references are not proper to combine as suggested in the rejection. So, the angle of Riddle's sidewalls is irrelevant to the claimed invention and cannot render it obvious.

Appellants also note that the features of claim 5, such as, for example, the recited ratio of h to b-a, are not addressed at all in this rejection. As such, the rejection is fatally flawed with respect to claim 5 and denies Appellants the

fundamental procedural and substantive due process which the Office is supposed to accord Appellants via the Administrative Procedures Act. See in this regard, In re Zurko, 119 S.Ct. 1816, 50 USPQ2d 1930 (1999), and In re Gartside, 53 USPQ2d 1769 (Fed. Cir. 2000). Accordingly, the rejection of claim 5 is fundamentally unsound and should be reversed for this reason alone.

The Office Action admits that the Nishio-Riddle-Buck reference combination does not teach rotating a workpiece while it is being etched in an ultrasonic bath.

To remedy this deficiency, the Office Action turns to Ohmi, which discloses a cleaning method that is used to peel off and remove a photoresist at room temperature and involves raising and lowering of a flat substrate (col. 6, lines 21-25), oscillating the flat substrate horizontally (col. 6, lines 34-36) and rotating the flat substrate (col. 8, lines 1-18).

Appellants respectfully submit that Ohmi fails to remedy any of the aforementioned deficiencies in the Nishio-Riddle-Buck reference combination so that, even if it were obvious to use an ultrasonic etching step in which the intermediate member is rotated, as recited, the resulting reference combination would not meet or render obvious the claimed invention.

Accordingly, Appellants respectfully submit that this rejection of claims 4-9 is improper and should be reversed.

C. Claim 2 stands rejected under 35 USC §103 as unpatentable over Nishio, Buck and Riddle, as applied in the rejection of claim 1, and further in view of U.S. Patent 5,182,188 to Cole, Jr. et al. (hereinafter, "Cole").

Appellants respectfully submit that this rejection is improper and should be reversed for the following reasons.

In rejecting claim 2, the Office Action relies on Cole for a teaching of the use of the laser beam to partially remove an etching mask. Appellants respectfully submit that Cole fails to remedy any of the aforementioned deficiencies in the Nishio-Riddle-Buck reference combination so that, even if it were obvious to use a laser to form a mask, the resulting reference combination would not meet or render obvious the claimed invention. This rejection is yet another example of the Office Action's failure to render obvious the use of a mask on a forming roll and selectively removing portions of the mask to achieve the recited forming roll. Merely substituting a laser for a lathe or milling device will not result in, or render obvious, the claimed invention. Furthermore, Nishio only uses milling to form concavities in the metal roll, not in a mask formed on the roll. None of the applied art discloses or suggests forming the mask on an intermediate roll and forming concavities in the mask. This fundamental flaw, and the other flaws in the base Nishio-Riddle-Buck reference combination, taint the entire rejection.

Accordingly, Appellants respectfully submit that this rejection of claims 4-9 is improper and should be reversed.

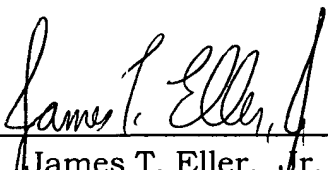
CONCLUSION


Appellants respectfully submit that claims 1, 2 and 4-9 are patentable over the applied art and that all of the rejections of record should be reversed.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

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Attachments: Claims Appendix
 Evidence Appendix
 Related Proceedings Appendix

VIII. CLAIMS APPENDIX

1. (Previously Presented) A process of manufacturing a roll punch used for forming partition walls of a plasma display panel, comprising the steps of:

coating a mask on an external surface of a forming roll;

partially removing the mask from said forming roll at regularly spaced positions while rotating said forming roll, thus forming an intermediate product having a plurality of mask-free parts formed as continuous circles around the forming roll; and

etching said intermediate product at the mask-free parts by radiating ultrasonic waves.

2. (Original) The process according to claim 1, wherein the partial removal of said mask from the forming roll at the regularly spaced positions is carried out by radiating a laser beam on the mask.

3. (Original) The process according to claim 1, wherein the partial removal of said mask from the forming roll at the regularly spaced positions is carried out by a cutting bite.

4. (Previously Presented) The process according to claim 9, wherein an inclination angle of each inclined sidewall of each of said partition wall forming grooves of the roll punch relative to a vertical reference line perpendicular to an external surface of lands between said forming grooves is 3° or less.

5. (Previously Presented) The process according to claim 9, wherein the partition wall forming grooves of the roll punch are fabricated such that a value of $[h/(b-a)]$ is 30 or more, wherein "h" is a height of each of the partition walls formed on the plasma display panel by said forming grooves of the roll punch, "b" is a width of a middle portion of said partition wall, and "a" is a width of a top portion of said partition wall.

6. (Previously Presented) The process according to claim 9, wherein the at least one ultrasonic vibrator includes two ultrasonic vibrators placed at different sides of the intermediate product.

7. (Previously Presented) The process according to claim 9, wherein, prior to the step of completely removing the remaining part of said mask from the forming roll, the intermediate product is removed from the etching tank.

8. (Previously Presented) The process according to claim 1, wherein the etching step includes etching intermediate product at the mask-free parts within an etching tank provided with at least one ultrasonic vibrator by radiating ultrasonic waves from said at least one ultrasonic vibrator towards the mask-free parts while rotating said intermediate product, thus forming a plurality of partition wall forming grooves encircling said forming roll of the intermediate product.

9. (Previously Presented) The process according to claim 8, further comprising:

completely removing a remaining part of said mask from the forming roll having the partition wall forming grooves, thus finally producing a roll punch.

10. (Withdrawn) A plasma display panel produced by using a roll punch manufactured according to claim 1.

Application No. 09/707,948
Atty. Docket No: 0879-0289P
Brief On Behalf of Appellants

IX. EVIDENCE APPENDIX

None

Application No. 09/707,948
Atty. Docket No: 0879-0289P
Brief On Behalf of Appellants

X. RELATED PROCEEDINGS APPENDIX

None